Remarks

Claims 1 and 3 through 15 are pending in the application. Applicants acknowledge with gratitude the Examiner's indication that Claim 5 constitutes allowable subject matter. Accordingly, Claim 5 has been amended into independent form, as recommended by the Examiner, and should thus be in condition for allowance. Claims 6 through 15 have been amended to depend from allowable Claim 5, and thus are respectfully submitted to be in condition for allowance, as well.

Claim 1 has been amended to highlight that the outer layer A advantageous includes a minimum of 3 weight percent of ethylene terephthalate units, and/or units derived from cycloaliphatic or aromatic diols and/or dicarboxylic acids. Support for this amendment to Claim 1 can be found in the Application as filed, for example on Page 17, lines 14 through 15. Claim 1 has further been amended to exclude extraneous constituents within the outer and base layers, based on the Examiner's comments on Page 11, Paragraph 3 of the outstanding Office Action.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

Claims 1, 3, 4 and 6 through 15 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Application Nos. 09/274,781 or 09/274,772 (the '781 and '772 Applications, respectively) in view of United States Patent No. 5,955,181 to Peiffer et al. (the '181 patent). Claims 1, 3, 4 and 6 through 15 stand rejected under the judicially created doctrine of obviousness-type double patenting over United States Patent Nos. 6,054, 212 ("the '212 patent"); 6, 149,995 ("the '995 patent", which Applicants submit should be removed as a reference, as noted below); 6,391,410 ("the '410 patent); 6,428,882 ("the '882 patent"); 6, 565,936 ("the '936 patent") or 6,537,647 ("the '647 patent") in view of the '181

patent. Claims 1, 3, 4 and 6 through 14 stand further rejected under the judicially created doctrine of obviousness-type double patenting over the '181 patent.

Claims 1, 3, 4 and 6 through 15 stand rejected over the '181 patent or the '212 patent or EP 087 8298 A2 ("EP '298," whose United States equivalent is the '882 patent) or EP 087 8297 A2 ("EP '297," whose United States equivalent is the '212 patent) or EP 094 5256 A2 ("EP '256," whose United States equivalent is the '995 patent) or EP 094 5259 ("EP '259," whose United States equivalent is the '410 patent) or EP 094 5261 ("EP '261") or EP 094 5262 ("EP '262") or EP 094 5263 ("EP '263," whose United States equivalent is the '647 patent). Claims 1, 3, 4 and 6 through 15 stand rejected as obvious over the '995 patent.

It may be useful to consider the invention as recited in the claims prior to addressing the merits of the rejection. The claims are directed to polyester films that include a base layer B and at least one outer layer A. The outer layer A includes ethylene 2,6-naphthalate units in a range of from 91 to 97% by weight. The thickness of the outer layer A is more than 0.7 μm and makes up less than 25% by weight of the total film. In advantageous embodiments, the outer layer A has a thickness of more than 0.8 μm and makes up less than 22 % by weight of the total film, as recited in Claim 3. The claimed films further include from 3 % to 9% by weight of ethylene terephthalate units, and/or units derived from cycloaliphatic or aromatic diols and/or dicarboxylic acids within the outer layer A.

Polyethylene 2,6-naphthalate ("PEN") is known to exhibit superior barrier properties in comparison to polyethylene terephthalate ("PET"). Unfortunately, PEN is also fairly expensive in comparison to PET. Therefore, barrier films have traditionally been formed from PET/PEN blends. Conventional blends have typically included as small an amount of PEN as possible to achieve a given barrier level, e.g. a targeted oxygen permeablity. Improved barrier properties have been generally thus been achieved to date by increasing the thickness of the barrier layer, rather than increasing the PEN concentration within the blend.

Applicants discovered that it was possible to increase the barrier properties of multilayered films by increasing the concentration of PEN within the outer barrier layer(s) instead of increasing the barrier layer thickness. Unfortunately, Applicants then discovered that that blends containing PEN in extremely elevated quantities, such as quantities approaching 100 wt %, have a detrimental impact on the interlaminar adhesion of the multilayered film. Applicants have thus determined an optimum blend range for barrier layers containing significantly elevated amounts of PEN that maximizes the barrier properties of the resulting films without undue sacrifice to the resulting interlaminar adhesion.

As noted above, PEN is an expensive material in comparison to PET. Consequently, Applicants have determined a highly advantageous combination of barrier layer blend ratios and layer thicknesses that provide a heretofore unknown balance of barrier properties, interlaminar adhesion and beneficial economics. More specifically, Applicants have determined particular multilayered film constructions that minimize layer thickness while maximizing the PEN content of the barrier layer blend, resulting in more economical films providing both advantageous barrier properties and adequate interlaminar adhesion. The claimed invention thus recites outer barrier layers having a thickness greater than 0.7 microns, but which form no more than 25% by weight of the total film.

None of the primary or secondary references, considered either alone or in combination, teaches or suggests the claimed invention. Each of the cited references is generally directed to multilayered films that include much lower amounts of ethylene 2,6-naphthalate units ("EN") within the barrier layer than the beneficial amounts recited in the claimed invention. More specifically, each of the cited references promotes the benefits of blends containing 40 wt % EN. Several of the references, i.e. '781 Application, '772 Application, the '212 patent, the '181 patent, EP '261 and EP '262, note benefit from the use of as little as 5 wt% EN. Several of the references further broadly disclose that up to 20 wt % of the polymer of the base layer may be included within the barrier layer. Regarding the overall film construction, the cited references generally note barrier layers as thin as about 0.1 micron.

None of the cited references, considered either alone or in combination, teaches or suggests the recited outer layer blends containing the recited range of 91 to 97 wt % EN. In fact, the references teach away from the claimed amounts by recommending blends containing much less EN. As noted within the Office Action of June 27,2003 and Dr. Peiffer's accompanying Declaration, conventional wisdom at the time of the invention was to increase barrier layer thickness to improve barrier properties, rather than increase the EN concentration within the blend. Applicants thus proceeded contrary to accepted wisdom in forming barrier layers having extremely elevated amounts of EN, i.e. the recited range of 91 to 97 wt%.

The references, considered either alone or in combination, further do not teach or suggest the recited inclusion of from 3 % to 9% by weight of ethylene terephthalate units, and/or units derived from cycloaliphatic or aromatic diols and/or dicarboxylic acids within the outer layer. The references teach away from this recitation, as well, by including up to 20 wt% of the base polymer in the barrier layer. There further would have been no motivation to have even determined the recited range. As further noted within Dr. Peiffer's Declaration, blends containing conventional amounts of EN (such as the recommended 40 wt % within the cited references) would not encounter the interlaminar failure induced by blends containing extremely elevated amounts of EN, such as the recited range of 91 to 97 wt % . Hence there would have been no need to have determined that the inclusion of the recited amount of ethylene terephthalate units, and/or units derived from cycloaliphatic or aromatic diols and/or dicarboxylic acids produces an advantageous balance of interlaminar adhesion and barrier properties for multilayered films containing the claimed extreme amounts of EN. To conclude otherwise indulges in an impermissible hindsight analysis.

In addition, none of the cited references, alone or in combination, teaches or suggests that barrier layers incorporating the recited elevated amounts of EN provide advantageous results within multilayered films in which the barrier layer has a thickness of greater than 0.7 microns and further makes up less than 25% by weight of the total film. The cited references merely broadly disclose barrier layers having thicknesses greater than 0.1 microns, and are silent as to a recommended proportion of barrier to base layer. As noted above, conventional wisdom at the

time of the invention was to increase the thickness of the barrier layer to improve barrier properties. There would thus have been no motivation to produce multilayered films having barrier layers less than 25 wt% of the overall film thickness. Instead, Applicants respectfully submit that an impermissible "obvious to try" rationale has been applied to this limitation.

Based on the foregoing, Applicants respectfully submit that Claims 1 and 3 through 15 are patentable in light of the art of record, considered either alone or in combination.

Statement of Common Ownership of the '995 Patent

The above-referenced invention, i.e. Application No.: 09/910,232, and United States Patent No. 6,149,995 were, at the time the above-referenced invention was made, both owned by Mitsubishi Polyester Film GmbH. This statement is made in conformance with MPEP 706.02(l)(2). Accordingly, Applicants respectfully submit that the rejection of Claims 1, 3, 4 and 6 through 15 as obvious in light of United States Patent No. 6,149,995 has been obviated.

CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 and 3 through 15 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

Serial Number 09/910,232
Attorney's Docket 00/121 MFE
Art Unit 1773
Page: 10

It is not believed that fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional fees are necessary to allow consideration of this paper, the fees are hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

Klaus Schweitzer
(See attached Limited Recognition Form)
ProPat, L.L.C.
2912 Crosby Road
Charlotte, North Carolina 28211
Telephone: (704) 365-4881
Fax: (704) 365-4851

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on Nov. 24, 2003

Claire Wygand
Ms. Claire Wygand